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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,642

08/20/2008

Guy Gentet

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EXAMINER

BOYD, ERIN M

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,642	<b>Applicant(s)</b> GENTET ET AL.	
	<b>Examiner</b> Erin M. Boyd	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 15-19 and 21-28 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,625,657 (herein after "Gallacher").

3. Regarding Claim 15, Gallacher teaches a nuclear fuel assembly 10 comprising a group of nuclear fuel rods 3 and a support skeleton, the assembly comprising two nozzles 12, 26; guide tubes 14 interconnecting the nozzles 12, 26; and spacer grids 18 secured to the guide tubes 14 (figure 2) and serving to hold the rods 3; the nuclear fuel rods 3 extending along a longitudinal direction and being disposed in a substantially regular array; the assembly 10 including at least one support skeleton reinforcing device 50 disposed between two successive spacer grids 18 and secured to the guide tubes 14 (note: the guide tubes are secured to the fuel rods and the reinforcing device is secured to the fuel rods; thus the guide tubes are indirectly secured to the reinforcing device), and the reinforcing device 50 being disposed inside the group of rods 3 and presenting a transverse extent that is less than the transverse extent of the array of rods 3 (figures 1 and 5B).

4. Regarding Claim 16, Gallacher teaches an assembly 10 wherein the reinforcing device 50 does not extend into a peripheral layer of rods 3 (figure 5B).

5. Regarding Claim 17, Gallacher teaches an assembly 10 wherein the reinforcing device 50 does not extend between the peripheral layer of rods 3 and an adjacent layer of rods 3 (figure 5B).

6. Regarding Claim 18, Gallacher teaches an assembly 10 wherein the reinforcing device 50 extends longitudinally substantially as far as a spacer grid 18 immediately above the reinforcing device 50 (figure 5B).

7. Regarding Claim 19, Gallacher teaches an assembly 10 wherein the reinforcing device 50 defines at least one transverse flow passage above the spacer grid 18 immediately beneath the reinforcing device 50, the passage serving to pass a cooling fluid for flowing through the assembly 10 (figure 5B).

8. Regarding Claim 21, Gallacher teaches an assembly 10 wherein the bottom end of the reinforcing device 50 is disposed at a distance from the spacer grid 18 immediately beneath the reinforcing device 50 so as to define the transverse flow passage for the cooling fluid (figure 5B).

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9. Regarding Claim 22, Gallacher teaches an assembly 10, wherein the reinforcing device is secured to at least two guide tubes (note that indirectly secured meets the claim limitation).

10. Regarding Claim 23, Gallacher teaches an assembly 10 wherein the reinforcing device 50 is a substantially plane plate (figure 4A).

11. Regarding Claim 24, Gallacher teaches an assembly 10 wherein the reinforcing device 50 is substantially parallel to one of faces of the group of nuclear fuel rods 3 (figure 5B).

12. Regarding Claim 25, Gallacher teaches an assembly 10 wherein the reinforcing device 50 is an angle member forming at least one L-shape (figure 4A).

13. Regarding Claim 26, Gallacher teaches an assembly 10 wherein the angle member is disposed in a corner of the group of nuclear fuel rods 3 (figure 5B).

14. Regarding Claim 27, Gallacher teaches an assembly 10 wherein the reinforcing device 50 does not have a mixer arrangement for mixing the cooling fluid that is to flow through the assembly 10 (figure 4A).

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15. Regarding Claim 28, Gallacher teaches an assembly 10 wherein the reinforcing device 50 has cells for receiving the nuclear fuel rods 3, wherein the dimensions of each of the cells are greater than the diameters of the nuclear fuel rods 3 (figure 2 and 5B).

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,625,657 ("Gallacher").

18. Regarding Claim 20, Gallacher teaches an assembly 10 wherein the reinforcing device 50 extends longitudinally (figure 5B) and wherein a passage is formed by an opening formed through a bottom end of the reinforcing device 50 (figure 3), but fails to specifically teach that said device extends longitudinally substantially as far as the spacer grid immediately below the reinforcing device.

However, one of ordinary skill in the art is expected to routinely experiment with the parameters, especially when the specifics are not disclosed, so as to ascertain the optimum or workable ranges for a particular use. For instance, the distance which the reinforcing device 50, of Gallacher, extends depends on the extent of damage to the

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spacer grid or fuel rod, the amount of vibration or turbulence in the core, etc.

Accordingly, it would have been obvious through routine experimentation and optimization, for one of ordinary skill in the art to construct the reinforcing device extend longitudinally substantially as far as the spacer grid immediately below the reinforcing device.

### ***Response to Arguments***

19. Applicant's arguments filed 3/9/2009 have been fully considered but they are not persuasive.

20. Note that Applicant states on page 8, lines 9-11 that Gallacher does disclose a support skeleton reinforcing device that is secured to guide tubes; however, based on Applicant's argument, Examiner understands that Applicant meant to state that Gallacher does not disclose a support skeleton reinforcing device that is secured to guide tubes.

21. Applicant argues on page 7, lines 24+ that Gallacher fails to teach at least one support skeleton reinforcing device disposed between two successive spacer grids and secured to the guide tubes, as recited in Claim 1, because the fuel rods and guide tubes are not secured to each other since the fuel rods are permitted to slide with reference to the spacer grid. Examiner disagrees. Gallacher teaches that it is well known that dimples and/or springs keep the fuel rods in their proper lateral positions and warns

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against gaps or spaces (i.e. damage) that may develop between fuel rods and the springs/dimples. Although Gallacher states that springs may permit *some* sliding of the fuel rods with respect to the spacer grids, said sliding does not preclude the spacer (springs) from being secured to the fuel rod. Even if the spacer slides an inch down or up on the fuel rod, it is still secured to the fuel rod (i.e. it is not detached or removed from the fuel rod).

### ***Conclusion***

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. Boyd whose telephone number is (571) 270-5378. The examiner can normally be reached on Monday - Friday 9:00-6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. M. B./  
Examiner, Art Unit 3663

/Rick Palabrica/  
Primary Examiner, Art Unit 3663